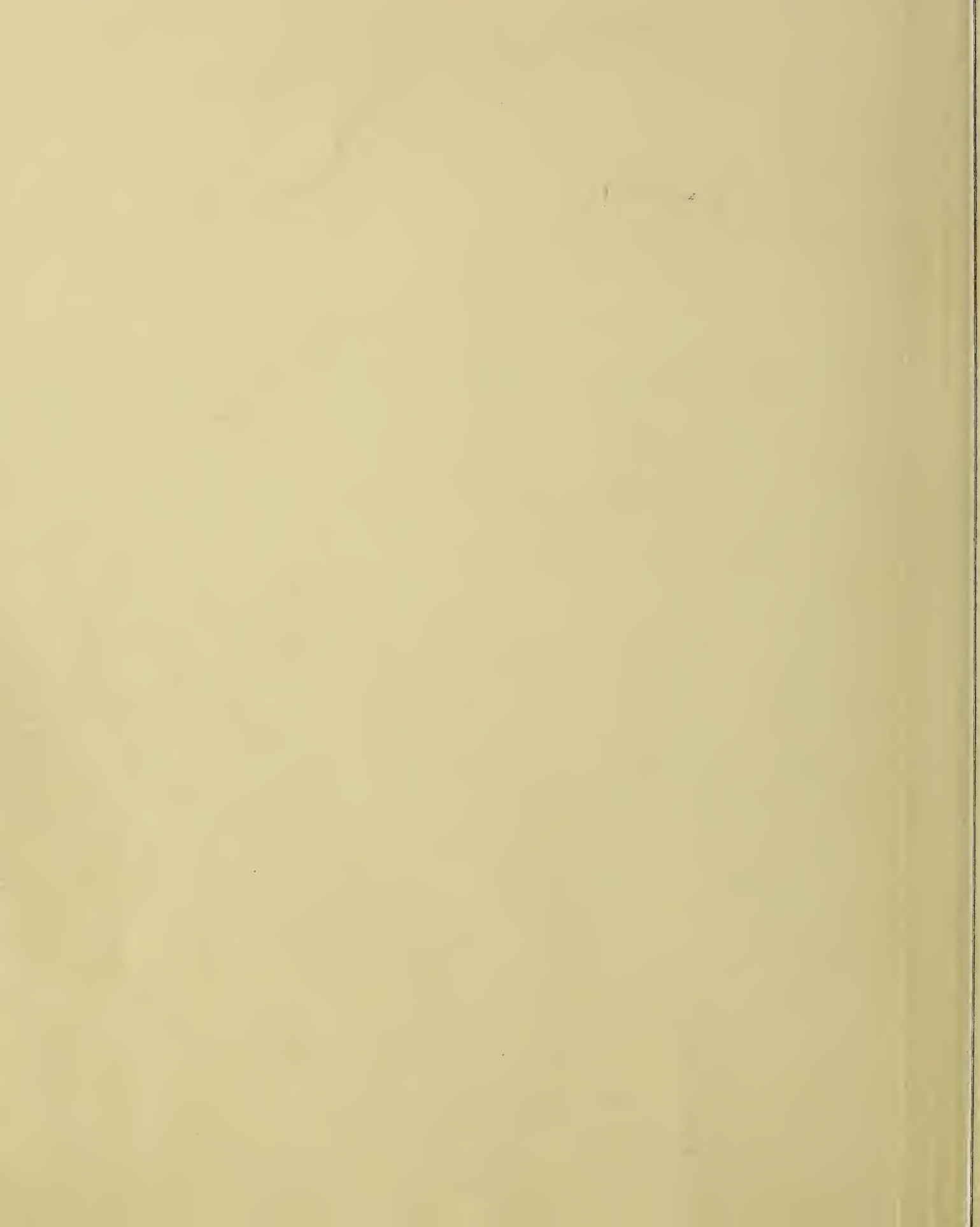
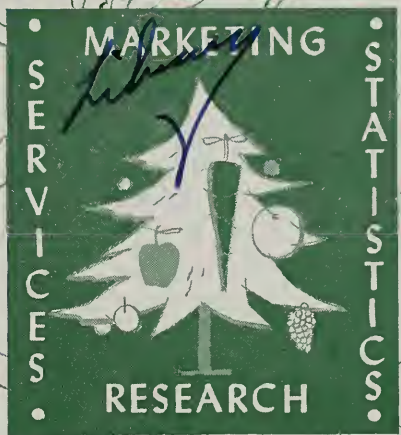


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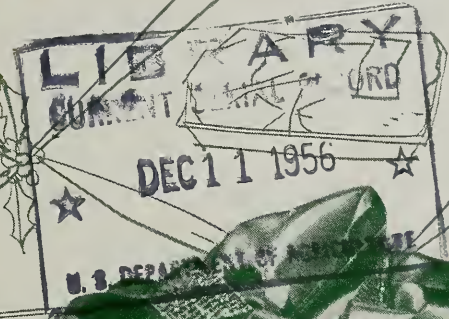
DECEMBER 1956



AGRICULTURAL MARKETING

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U. S. DEPARTMENT OF AGRICULTURE • AGRICULTURAL MARKETING SERVICE

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Cover

Top-quality fruits and nuts are finding an ever expanding outlet in the gift package market. Chief among the items attractively packaged in a dazzling array of colorful films and foils and tissues and satin ribbons are apples, pears, citrus, and nuts. Many fruit shippers specialize in the marketing of gift packaged fruit. It is often shipped express in full carloads to terminal markets and then redistributed.

Photo identification

Page 3, Neg. 3118-56(4) (bottom, left), N3718 (bottom, right); p. 4, N10464 (left), AAA18797 (right); p. 5, N3675 (top, left), SCS-TEX-12653 (top, right); p. 6, BN3267 (top), BN3268 (bottom), p. 7, BN3269; p. 11, BN3270; p. 16, BN3231.

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Editor (acting) Milton Hoffman

Measuring the 1975 market

THE DEMAND FOR FARM PRODUCTS

By Rex Daly

More people, more money to spend, more output per man-hour, more marketing services . . .

These are the trends in our economy. If you project these trends into the next 20 years, you will get a picture of the 1975 market for farm products—between 40 and 45 percent larger than in 1953.

But there are some “ifs” in the picture—if prices remain fairly stable, if population trends continue, if we maintain a high level of employment, and if we have peace in the world.

And of more importance than we might think is the matter of changes in consumer tastes.

The larger population is the most important factor in the 1975 market demand for farm products. At the present rate of growth, we should have about 30 to 35 percent more people by 1975.

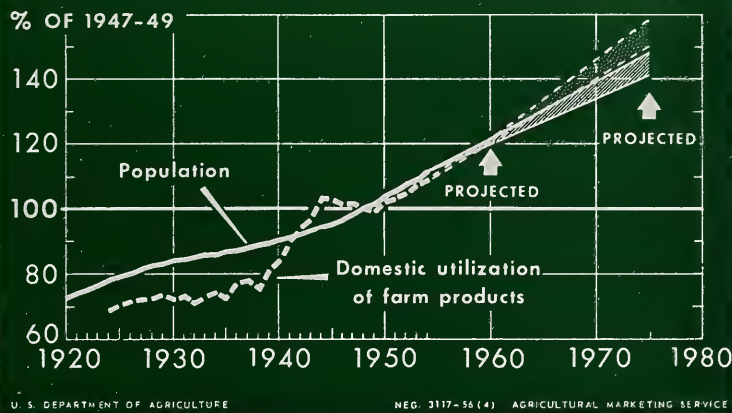
Even at the present rate of per capita consumption of farm products, the population growth would increase the size of the market by a third.

Another 10-percent increase in the size of the 1975 market would result from economic growth and rising incomes. Our economy would double in size and consumer income would increase by 60 percent over the level of 1953.

. . . another 10 percent from rising incomes . . .

With Projections to 1975

INCREASE IN POPULATION AND DOMESTIC USE OF FARM PRODUCTS



. . . increase by a third from population growth . . .

This additional money in consumers' pockets may step up per capita consumption of farm products about a tenth from 1953 levels.

But more money to spend will also mean an “upgrading of our diet.” It does not mean that the average person will eat larger quantities of food in 1975 than he did in 1953. What it does mean is that people will be buying more of the foods that have higher unit-cost. Actually, it reflects the trends in our eating habits: more meats; more leafy, green, and yellow vegetables; more fruits, especially citrus; and less of such foods as cereals and potatoes.

This look at the 1975 market is the work of economists and statisticians of the Agricultural Marketing Service. Such appraisals of long-run demand prospects for farm products provide a guide to farmers, marketers, legislators, and agricultural administrators who must plan for the future.

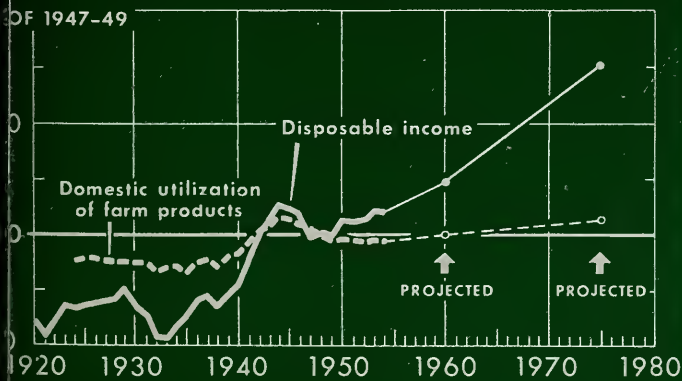
How big will our rapidly increasing population be in 1975? Researchers made most of their calculations based on a population of 210 million. But some data were adjusted to reflect what now appears to be a

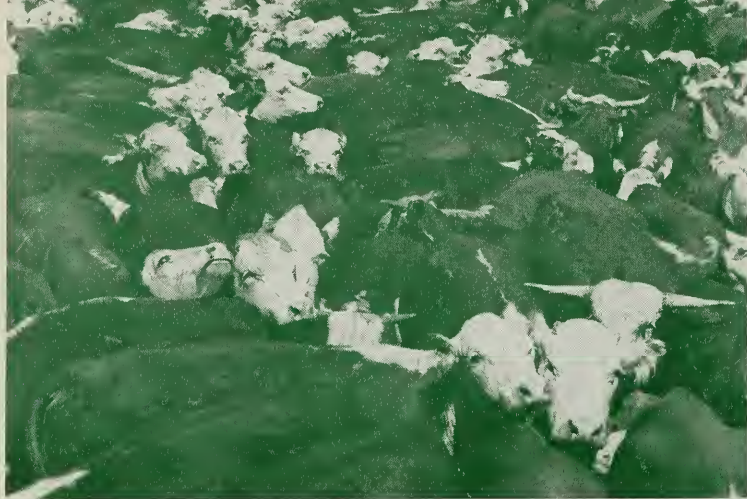
. . . demand for marketing services may double . . .



Person, With Projections to 1975

DISPOSABLE INCOME AND DOMESTIC USE OF FARM PRODUCTS





... at least 40 to 45 percent more livestock products ...



... feed needs would reflect increase in livestock ...

... measuring the 1975 market for farm products

more probable population of about 220 million.

Census Bureau estimates range from 207 to more than 228 million—the midpoint of this range is about a third above 1955. In the previous 20-year period, from 1937 to 1955, population increased 30 percent.

High birth rates now, and in recent years, will result in a substantial rise in births during the next 20 years, particularly if economic activity continues at a high level and fertility rates are maintained. In this respect, it is interesting to note that, by 1975, the number of women in age groups 20 to 34 may total 45 percent above 1955.

The size of the Nation's economy by 1975 may be double 1953's, if high employment continues. This is probably a conservative estimate. The amount of goods and services, when adjusted for price changes, more than doubled from 1929 to 1953.

We can expect a labor force of 90 to 95 million, with a shorter work week. Better trained workers and more equipment for each worker should maintain a continuous rise in output per worker—possibly at an annual rate of 2.5 percent.

With a high level of employment, and this does not rule out the probability of fluctuations in economic activity, the real value of goods and services would rise from 363 billion dollars in 1953 to around 725 to 750 billion dollars in 1975.

A doubling in the output of goods and services and a continued rise in the productivity of workers would mean more money to spend—about 60 percent more, after payment of taxes—than in 1953.

With more money to spend, consumers will likely want more and more services with their foods. Demand for marketing and processing services may

approximately double. Even with increased efficiency a larger proportion of our population may be needed to perform the marketing tasks. The 1975 market probably will bring changes in processing and marketing which lie beyond the scope of the most imaginative minds.

It appears reasonable to expect that, as families move from lower to higher income levels, their eating habits change more like those observed for higher income families. Assuming no change in the general price level or the relative income position of the families, the trend would indicate, that by 1975, more than two-thirds of all families would have incomes above \$5,000 as compared with 45 percent in 1950.

The demand for such necessities of life as food and fiber, in general, is not very responsive to changes in prices and consumer incomes. Specifically, an increase in prices does not reduce consumption very much. And a rise in income will increase per capita use of farm products very little.

Rising incomes will modify the kinds of commodities desired. The shifts will result in an "upgrading of the diet" as the population eats more livestock products, fruits, and leafy, green, and yellow vegetables.

But these increases will likely be about offset by a further reduction in per capita use of cereals and potatoes. Thus, we may expect the pounds of food consumed per person to change very little even though the price-weighted consumption index would rise as consumers shift to the higher cost foods.

Taking a little closer look at the 1975 market, we see that each person, on the average, will be eating 19 pounds more meat in 1975 than in 1953. This gain is about the same as the increase from 1925-29 to 1953.



... people will be buying more fruit, especially citrus ...



... rise in income would increase per capita use of cotton.

Projected demand for dairy products indicates little change in per capita consumption of veal. Thus, combined use of beef and veal is less than a tenth above the relatively large consumption per person in 1953. On the other hand, per capita consumption of pork in 1975 should be about a fifth above the relatively small consumption in 1953.

The decline in the per capita consumption of dairy products during the last 2 or 3 decades was due to a drop in per capita use of butter. With rising incomes, it is expected that total milk consumption will increase slowly with most of the increase in fluid milk.

By 1975, consumption of chicken and turkey per person should increase by a fifth; eggs, by 8 percent from 1953 levels.

Per capita consumption of food oils is not expected to change much during the next quarter-century.

In 1953, consumption of food fats and oils totaled 43.5 pounds (fat content); in 1925-29, an average of about 43 pounds. Consumption of oils in shortening and lard has changed little, but has increased materially in salad oils and dressings, and in ice cream.

Consumption of fruit may increase nearly a fifth per person. Citrus fruits would show the largest gains.

Vegetable consumption, excluding potatoes, would be about a sixth larger per person. The largest relative gain is projected for tomatoes, although consumption of most leafy, green, and yellow vegetables may increase as much as or more than tomatoes.

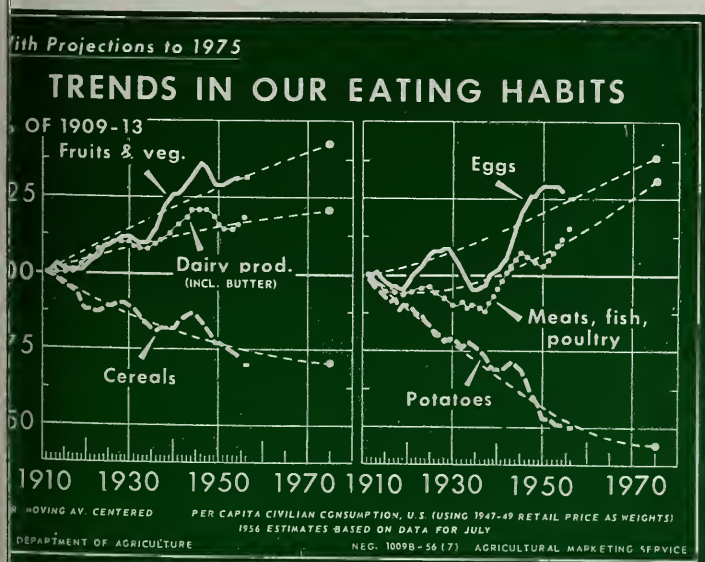
Consumption of potatoes, dry beans and peas, and grain products is expected to continue on the downtrend during the next 2 decades. But an expansion in such uses as potato chips and frozen french fries may moderate the downtrend in potato consumption.

Nonfood use of such commodities as cotton, wool, tobacco, some oils, and grains for industrial uses probably totals in most years, around 12 to 14 percent of farm production. The prospects for the combined use of these nonfood products indicate a rise of around 8 percent per person from 1953 to 1975.

Although synthetic fibers will continue to compete with cotton and wool, the substantial rise in consumer income should increase per capita use of cotton and maintain wool consumption at the current rate of use.

Per person use of tobacco has trended strongly upward. With a rise in income in prospect, a continued increase should take place during the next 2 decades. Recurrent publicity on possible adverse effects of smoking can very well moderate the trend.

Industrial uses of grains are expected to expand as population and the economy grow.





IMPROVED POULTRY PACKING EQUIPMENT

By Rex E. Childs and Harold D. White

Ready-to-cook poultry passing down an improved packing line now ends up in just the right position for the packer to reach it easily. The birds come off the line directly in front of the packer, slightly above the packing box. It takes but a minimum reach and effort to lower them—two at a time—into the box.

In limited tests, this new packing line has made it possible for two packers to box more than 5,000 broilers an hour.

The manager of the plant where this equipment is being tested says, "It saves us both time and money, and gives us a better pack." He also feels that it makes for a better grading service.

A grader stationed beside the conveyor belt can check each bird before it is packed. The birds also pass directly in front of the packer and his eyes never shift away from them. This constant surveillance reduces the chances of an occasional undergrade bird getting into the pack.

The new integrated packing line that makes this speeded up production and more careful grading possible was developed jointly by Agricultural Marketing Service and the University of Georgia Agricultural Experiment Station in Athens, Ga. It consists of three main parts—a chill tank tipper (MARKETING ACTIVITIES, February 1956), a shaker-hopper, and a conveyor belt with a packing apron.

The tank tipper unloads the chilled birds into the shaker-hopper. The incline and shaking action of the hopper move the birds at a uniform rate onto the conveyor belt, which elevates and slides the birds onto the packing apron at the packer's station.

The chill tank tipper, occupying little more space than is required for manually removing birds from a chill tank, empties a tank in from 10 to 15 seconds. It does the job without the discomfort of handling

ice-encrusted poultry and in much less than the 10 man-minutes needed to empty the tank manually.

The tank is simply shoved into position on channel iron ramps. The fork of the tipper then rotates the entire tank of poultry in a 114-degree arc. Although it is not necessary to fasten the tank to the fork, a fastening clip can be installed. The angle at which the birds will slide from the tank into the shaker-hopper is not, however, enough to topple the tank.

Once in the shaker-hopper, the birds are oscillated at about 350 cycles a minute. The incline of the hopper and the gentle shaking action move the birds evenly down onto the conveyor belt. At the discharge end of the hopper, the poultry passes over a grill which allows any remaining ice and water to drop to

Operator turns 230-gallon chill tank onto the shaker-hopper.



a floor drain or onto an ice disposal conveyor.

The conveyor belt onto which the birds are jiggled is 18 inches wide, water proofed, and neoprene coated. Eighteen feet long, it is built on an incline so that as the birds pass along on the belt they are lifted into packing position. The uniform rate at which the birds are fed onto the belt allows the conveyor speed to be set at just the right rate to supply the packers with birds at all times.

Birds drop off the conveyor belt onto a packing apron approximately 3 feet wide at the discharge lip. The apron also has a grill to permit any remaining ice and water to drop from the birds.

Opened boxes with paper liners in position are brought to the packers on a roller conveyor which passes under the lip of the packing apron. When a box of birds is packed, it is pushed on along the conveyor for weighing. The next box is then pulled into packing position.

Time studies show that by using this method almost 87 percent of the packer's productive time is spent in actually packing the birds. With other methods of packing, he is able to spend only about 70 percent in the packing operation. He is kept busy getting and disposing of boxes or is waiting for the poultry to move down the line.

The new integrated packing line allows a smoother flow of the product to the worker and puts his working tools in just the right position. Idle time is kept to a minimum, and increased packer productivity and savings in labor are realized.

Birds move up the conveyor belt into position for the packers.



EGG GRADING AND INSPECTION

By T. H. Pond and Lester Kilpatrick

Producers, wholesalers, retailers, and consumers—all stand to gain from marketing eggs on a graded basis. But as yet, egg standards, grades, and weights vary from State to State. This variation is so widespread that it handicaps marketing efficiency.

To arouse interest in the use of uniform standards and grades on a national basis, the Poultry Division of Agricultural Marketing Service has published a 24-page booklet. The pamphlet, Agriculture Information Bulletin No. 159, "Grading and Inspection of Eggs and Egg Products," is designed to promote understanding of the basic principles of inspection and grading.

It also points out the benefits to be gained from marketing eggs on a graded basis.

The "official" egg grading mark is the consumers' assurance of a quality product of a specified weight or size. At the same time, it is the producers', wholesalers', and retailers' assurance of ready acceptance of their product on the market.

Selling eggs on a graded basis makes everyone more conscious of the value of high-quality merchandise. It also brings better returns to producers and marketing men. Consumers are willing to pay the necessary price differentials for better-than-average quality and for larger size.

But most important, egg grades provide a working basis for merchandising shell eggs all along the marketing line. They give producers and market men a common language for trading.

USDA currently offers a grading service to the egg industry. Available on a voluntary and practically self-supporting basis, the program affords impartial grading and consistent and uniform interpretation of egg standards and grades.

Up-to-date information concerning the growth and extent of the Federal-State grading program is presented in detail in the egg bulletin.

The USDA inspection program for egg products—frozen and dried eggs—is also discussed. Again the authors point out the need for standardization, the importance of sanitary control and supervision.

PROTECTION OF WOOLEN FABRICS

By Hamilton Laudani



"The battle between the Quartermaster Corps and the armies of moths and fabric pests that attack and destroy woolen military fabric has been won—another victory for research and development."

That's how the Army sums up its all-out war against the insects that have been laying siege to its stored woolen materials and garments.

Much of the credit for winning this "Battle of the Bugs" goes to the USDA Savannah Stored-Product Insect Laboratory, which was called up as an auxiliary unit.

The problem was to protect from insect damage an inventory of approximately 100 million yards of woolen fabrics plus innumerable uniforms. Moths and fabric pests were actually "eating up" thousands of dollars worth of Government property each year and causing an annual outlay of over 1½ million dollars for special treatment to prevent an even larger loss.

The Quartermaster Corps had tried to attack the insects with naphthalene flakes placed between the rolls of stored cloth and in cartons of garments. But this treatment had to be repeated every six months at considerable cost in material and labor.

Naphthalene alone was not very effective against the fabric pests. So, the Quartermaster Corps attacked with spray guns, applying residual sprays to the outsides of the stacks, and giving warehouses frequent aerosol treatments. When all else failed, they fumigated the bolts of fabric with methyl bromide.

This cycle of treatment and retreatment also proved costly in materials and manpower. And again it provided only temporary protection.

At this stage in the maneuvers, the Savannah Stored-Product Insect Laboratory joined forces with the Quartermaster Corps. A comprehensive program of research was begun to determine the value of commercial mothproofing chemicals and new synthetic insecticides in protecting wool and its products from insects.

This research involved hundreds of controlled, repeated experiments. The scientists made tests to find out how long the chemical deposits were effective and the result of their use upon the fiber strength of the material. They sought the most effective and efficient method of application as well as the extent of deposit removal after cleaning.

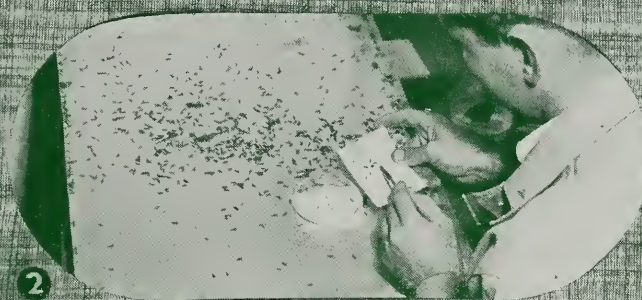
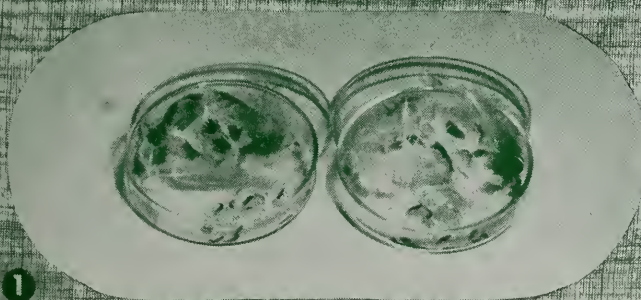
Dozens of rolls of Army uniform cloth were exposed to carpet beetles and clothes moths over a five-year period of carefully planned experimentation. Dozens and dozens of detailed observations and chemical analyses were made.

Researchers found that DDT gave outstanding protection under the conditions of military fabric storage. The very simple and inexpensive method of applying DDT to Army fabrics also became apparent.

Since all woolen fabrics were "sponged" to prevent shrinkage and distortion as a normal procedure, it was possible to accomplish the sponging and protective treatment in one operation. The fabric was merely immersed in a DDT emulsion instead of being sponged with clean water. Quartermaster chemists and fabric experts developed a practical procedure based on the findings of the Savannah Laboratory.

Thus, cloth costing from \$6 to \$10 per yard can be completely protected from fabric pest damage at a cost





of 1 cent a yard. Once treated, the fabric is protected for at least five years, or until it is dry-cleaned. Garments made from the treated fabric are also protected during storage.

In addition to considerable savings in chemical costs, the new method saves manpower. It removes the need for constant surveillance and the reapplication of protective agents. The DDT-impregnated cloth can now be put in cartons and stored for as long as five years without need for retreatment or inspection. The cartons permit palletized storage and the use of modern, efficient, and economical warehousing procedures.

Not only has the Army benefited from the research experiments of the Savannah Laboratory, but the homemaker, the retail merchant, and the wool processor have also profited.

As a result of further experimentation, washable woollens, raw wool and feathers can now be protected through applications of DDT. It was found these products selectively absorb DDT from a very dilute nonionic emulsion. A predetermined amount can be deposited by simply adding to a water bath a measured amount of a special emulsifier called "EQ-53," in relation to the weight of the product to be treated.

The "EQ-53" formula is available to homemakers through many retail outlets. In using the preparation, 1 tablespoon is simply added to the wash or rinse water for each pound of dry woollens. This is enough to protect the garments or blankets from insects until they are again washed or dry-cleaned.

EQ-53 can also be added to rinse water in the last

stage of scouring grease wool and the resulting deposit of DDT will remain through carding and combing.

Feathers may be treated by adding EQ-53 to the rinse water during the usual washing process in the preparation of feathers for marketing. In fact, the Quartermaster Corps considers this protection so important that it requires all purchases of feathers and down to be so treated.

Household woollens, clothing, rugs and animal fibers that cannot be washed may be successfully treated with DDT sprays. Five-percent DDT household sprays can be easily applied with hand sprayers to suits, coats, and other woolen garments to protect them against fabric pests during storage periods. Rugs can be protected for a year or more by a single spray. Its effectiveness lasts even under conditions of daily use and frequent vacuum cleaning.

Experiments also show that DDT offers excellent protection for bristles, curled hair, hair felt, wool felt, and similar animal fibers.

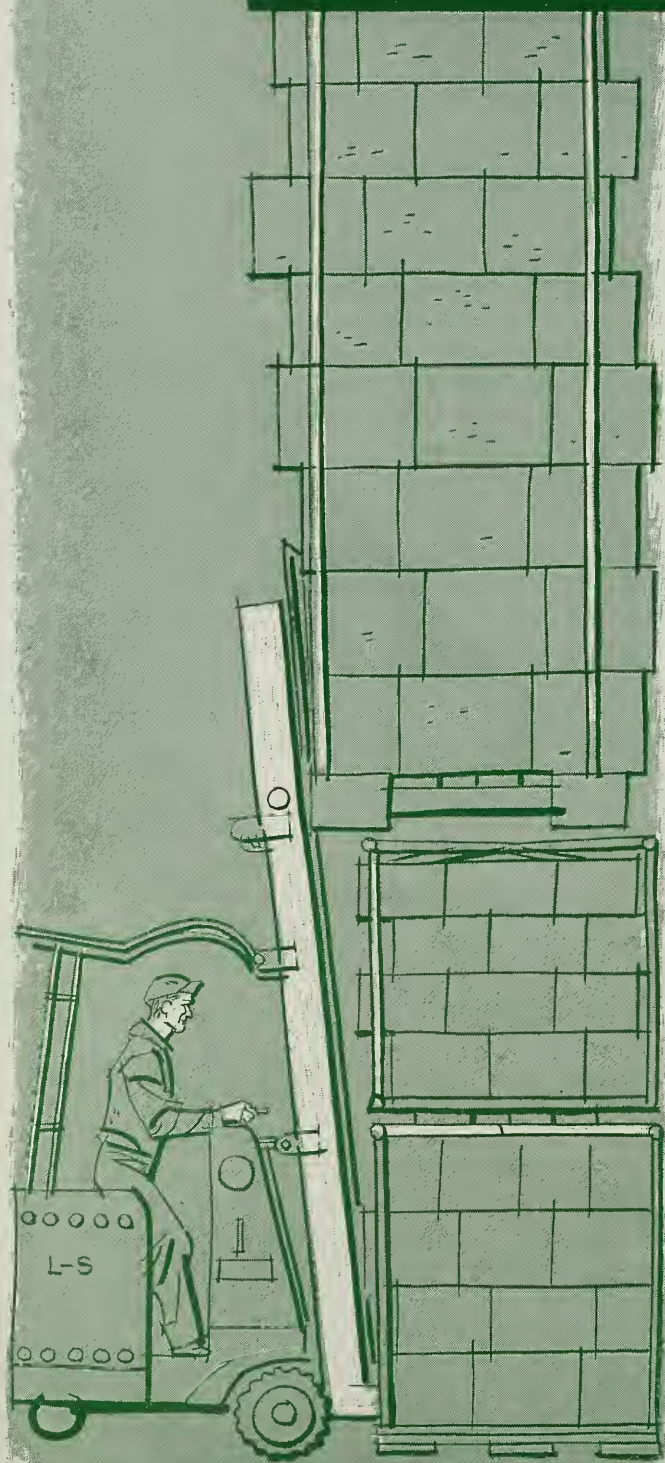
Photos

1. Evaluating two materials for protecting feathers.
2. Placing 10 black carpet beetle larvae in petri dish containing piece of treated woolen fabric.
3. Removing woolen test strip from oviposition cage.
4. Men inspect and mark damage found in first yard of untreated cloth after 5 years' infestation.
5. Untreated roll of woolen material badly damaged.
6. DDT-impregnated uniforms found free of damage.



PALLET STACKING HOW HIGH?

by Theodore H. Allegri



To make the most of their "air rights," warehousemen must stack palletized merchandise as high as possible. But how high?

That's what Agricultural Marketing Service sought to find out in a recent study. How high can pallets be stacked to fully utilize storage facilities?

It depends on how stable the tier is, how sturdy the container, what type of stacking device is used.

One of the main difficulties, especially in cold storage plants, is to overcome compression of heavy loads on perishable and fragile merchandise in the lower tiers. Also, it is often difficult to obtain stability above the first tier.

Warehousemen using high-piling equipment and high stacks must make sure the tiers are firm and that the merchandise stays put. It doesn't always.

In one cold storage warehouse located on a railroad line, 5,000 cases that had been tiered three-pallets high tumbled to the concrete floor after a freight roared by. The merchandise was completely destroyed.

To prevent more such accidents, this company started to use "stacking irons." Made in the warehouse shop, these irons consist of 5-foot lengths of 3 x 3 x 1/4 equal leg angle iron weighing 4.9 pounds per foot with a 4-inch square steel plate 1/4-inch thick welded to one end. One of these irons is put on each corner of the pallet load, and the four stacking irons are held in place by two rope ties.

These iron corners work very well for carton sizes that can be stacked on the pallet up to the square end plates of the stacking irons. Even a one- or two-inch gap between the top of the cartons and the end plate is all right.

But where the gap is large, the irons provide but little stability for the pallets that are placed on top of them. Warehousemen are rarely able to get a stable pallet stack of more than two loads high.

Although these "socket-less" stacking irons have two definite advantages—they don't require hardware on the pallet and may be placed on pallets of any size—

these are out-weighed by their disadvantages. To be effective, they can be used only with certain size cartons which permit stacking up to the end plates. But more important, the containers must be placed on the pallet with extreme accuracy so that the stacking irons will be exactly vertical.

Irons that are tied to the pallet out-of-plumb may become a real danger in the storage warehouse, especially where high stacking is done. In addition, regardless of how carefully the stacking irons have been placed on the pallet load, great care must be taken by the forklift truck operator when he stacks the pallets one upon the other.

To accommodate containers that don't fit 5-foot irons when palletized and which may be high-stacked without crushing, shorter stacking irons can be effectively used. These are usually 30 inches in length and made of sections of 2 x 2 x $\frac{1}{8}$ equal leg angle iron weighing 1.65 pounds per foot.

The short sections, with ends turned over to form an end plate similar to that on the 5-foot stacking irons, serve to hold the top tiers of the pallet load in place. They work rather well with some frozen containers that don't stack well because of bulged surfaces.

In general, though, if the short stacking iron does not extend much below the top carton level, a simple rope tie would do the same job. The added work involved in placing the irons on the corners of the load is seldom necessary.

For safe and efficient high stacking the tier rack appears to offer the greatest advantages.

Tier racks consist of two tubular metal frames factory-made to fit any given sized warehouse pallet. Welded foot plates snap on the conventional wooden pallets to convert them into pallet racks.

The advantages of using these frames are threefold. There are no special pallets or attachments needed. Neither bolts nor screws are required to assemble the frames. And each frame is exactly like the other; there are no "right-hand" or "left-hand" pieces. Any two pieces fit together and form a complete rack when locked at the center.

High-stacking, even with highly compressible merchandise, may be safely achieved with tier racks. The author easily stacked four tiers of 40- by 48-inch pallets to a total height of 16 feet. The cartons in the top two tiers were not placed in a locked pattern in order to give some indication of the stability of the top pallet loads.

This high-piling was done by using a frame having a 42-inch vertical clearance. Current tests with tier

racks having 54 inches and more clearance indicate that stacking over 20 feet is feasible.

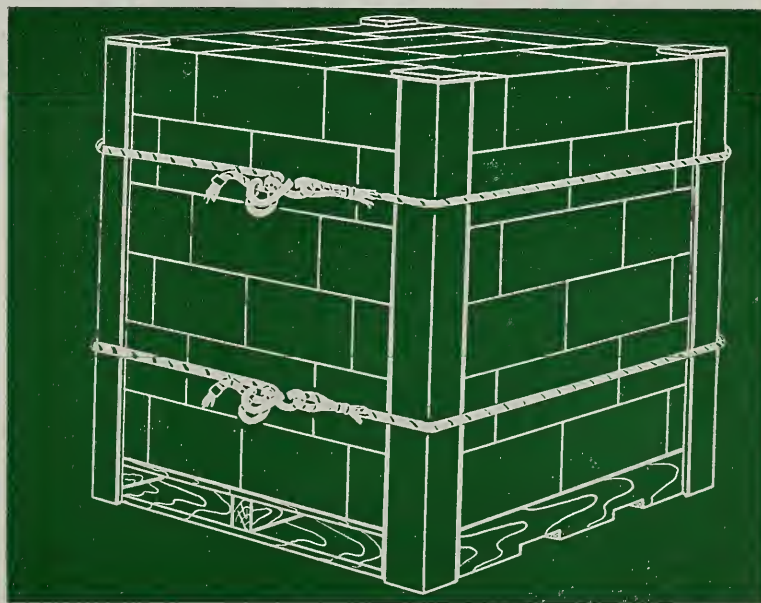
The tier racks also make possible a rather flexible warehousing operation. Items may be removed from the lower pallets without disturbing the loads above. Also, the wholesale distributor may use the tiering frames in place of the conventional, non-portable pallet racks. When not needed as racks, the frames disassemble easily and may be nested.

Several types of box crates were tested in the study of high-stacking. Wooden box crates differ widely in construction, in size, and in wood specifications. Obviously, the better the grade of lumber, the better the crate will withstand hard usage.

Even relatively well made boxes frequently come loose at the sides. But when bolts are left out, either to economize or to speed up production, the box crate fasteners usually get sprung out of shape or loosened. In a short time, these crates are unusable for high-stacking.

Box crates and baskets are generally used for storing irregularly shaped items, such as animal carcasses which are difficult to stack by other means. At the

Socket-less stacking irons require no special hardware and fit pallets of any size. They are held in place by two rope ties. When used in 30-inch lengths, irons should extend below top layer of load. Short irons work well with frozen containers.



present time, this is the most economical way of handling such commodities. Researchers would do well to consider other devices for obtaining high stacks when highly compressible material or hard-to-stack merchandise is involved.

Show Window

FOR U. S. AGRICULTURE

By Robert Ingram

Come one, come all!

This familiar chant is a standing invitation for one and all to "come to the fair." And come they did—in the thousands—to see U. S. agricultural exhibits at international trade and food fairs during the past year.

In Bogota, Osaka, and Barcelona, in Cologne, Ciudad Trujillo, Rome, and London, in Zagreb, Salonika, and Vienna—just about everyone came to the fair.

In Japan, the USDA exhibit was literally mobbed by the crowds. The first day more than 100 police had to be called out to keep the people from completely over-running the exhibits in the American pavilion. In fact, more than twice as many people as were expected attended the Osaka fair.

And the same record-smashing attendance was recorded for the other fairs as well.

Included in the crowds were a goodly number of representatives of manufacturing, importing, and retail firms. These businessmen were keenly interested in the equipment which turned out the ice cream, recombined milk, and doughnuts. They were anxious to learn of the new products being introduced, of ways of improving their own products through the use of American agricultural commodities.

They wanted to see everything—the poultry, the fruits, the lard and meat exhibits, the dairy, grain, and tobacco displays.

Talks with these people revealed that they were "tremendously impressed" with what they saw.

A. P. Davies, representing the American Meat Institute at the London fair, said that he had talked with many members of the British trade and government officials. He felt the London fair "offered excellent opportunities for furthering USDA's foreign trade development program."

"This is a fine show window for American agriculture," he said.

And that's exactly what all the USDA exhibits are meant to be. Through the displays, the Department is able to exhibit abroad the plentiful products of our farms and provide an opportunity for contacts between U. S. marketers and foreign buyers.

In the past year, USDA has participated in 10 international trade and food fairs with a total attendance of nearly 7,500,000. The exhibits are arranged by the Foreign Agricultural Service working in cooperation with private agricultural trade groups and other government agencies.

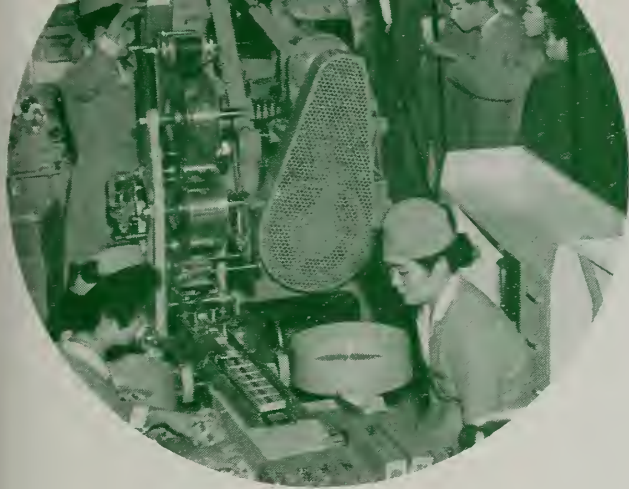
The industry provides exhibit ideas, technical personnel, display materials and, in some cases, commodities for sampling. The Government organizes and manages the exhibit, arranges for its design, construction and operation and provides travel expenses of industry technicians and commodity specialists. USDA costs come from funds accruing under the Agricultural Trade Development and Assistance Act of 1954 (Public Law 480).

This is all part of a general program to promote the export of American farm products. That this overall program is achieving some success is indicated by the fact that the overseas movement of American farm products, except for cotton, is now the highest in 30 years.

At the Cologne fair, USDA's first officially sponsored food exhibit abroad, 16 private sales-promotion displays were shown. As a result, U. S. participants executed contracts amounting to \$428,000—the full sales quota allowed by the West German Government.

The Bogota fair featured three basic commodities—cotton, dairy products, and grain. U. S. milled flour was introduced here in the hope that the Colombian Government might relax import restrictions on this commodity. At the same time, the dairy industry featured another innovation in bread-baking—the use of non-fat dry milk solids. After the close of the fair, several bakers in the Bogota area formed a trade association to explore further use of this U. S. product in baking.

In Rome, a uniquely different type of exhibit was shown. Not one, but hundreds of American food products were displayed in a giant supermarket occupying 10,000 square feet of floor space. It showed some 400,000 residents of Rome, as well as delegates from 26 nations, the widest possible variety of American agricultural products and the equipment used in our modern merchandising methods.



Although it is too early to judge the full effects of the "Supermercato" display, considerable interest in U. S. products was generated. And it is this interest that may mean future sales and more contracts for American producers.

Since the close of the Osaka fair, for example, five separate agricultural market development projects have been started in Japan. They cover tobacco, soybeans, wheat, cotton, and inedible fats and oils. All but the latter project are continuations of exhibits held at the fair.

In Barcelona, the U. S. cotton industry sponsored the appearance of Patricia Ann Cowden, the U. S. Maid of Cotton, who showed Spanish audiences the style and beauty of cotton garments. Style shows are proving an effective trade promotion device to help keep U. S. cotton in demand by the foreign clothing industry.

The crowds also discovered that frozen chicken can be thawed and cooked like fresh chicken. This simple fact, commonplace to us, is helping to open an expanding market for U. S. frozen poultry in Europe.

The USDA Food Fair exhibit in Britain was supported by a number of special trade development activities including a get-acquainted luncheon meeting for British food trade leaders and a trade day and demonstration for poultry processors and importers. Promising trade queries concerning pastry mixes and rice were among the first follow-up results of the fair to reach this country.

At a group of Central European fairs, the agricultural exhibits featured recombined milk and ice cream. One immediate result that will mean increased trade was the purchase of milk recombining equipment by the municipal dairy of Zagreb, Yugoslavia.

Success of realistic and practical programs such as these for promoting the sale of American agricultural products abroad can mean much to American farmers, handlers and processors in the form of increased exports of our plentiful food and fiber products.



Changing Patterns in FLUID MILK DISTRIBUTION

By Helen V. Smith and Louis F. Herrmann

METHODS of distributing fluid milk have changed nearly everywhere in the United States in recent years. Milk distributors' efforts to fulfill the varying tastes and buying habits of consumers, as well as to cut costs and increase sales, have led to new developments in marketing.

More homogenized milk is being sold. The glass milk bottle is giving way to paper containers. Half-gallon and gallon containers are replacing quarts.

These and other shifts in milk marketing are in evidence all over the country, but some markets have changed more rapidly than others. Agricultural Marketing Service spot-checked across the country to see how much certain markets had changed.

In nearly all the markets analyzed, the consumption of plain milk had declined. In late 1954 and 1955, plain milk and special types had nearly disappeared in Cleveland, St. Louis, San Antonio, and the New York marketing areas. From 90 to 94 percent of the milk sold in these cities was homogenized.

In Columbus, Ohio, Detroit, Knoxville, Louisville, and Minneapolis-St. Paul, homogenized milk accounted for more than two-thirds of the sales. Only Rochester, N. Y., sold less. Here only 54 percent was homogenized, while 40 percent of the sales was plain and 6 percent special milk.

The most striking change in milk marketing has been in the types and sizes of the containers. The quart glass bottle had been standard before the war. Now it is in competition with an assortment of glass jugs, bottles, and paper containers.

Although steadily declining in popularity, the glass

container is still used more generally than the paper carton. Glass bottles are delivered predominantly on home routes, and more special milks continue to be bottled in glass. The pint glass bottle, however, has almost disappeared except for the sale of cream.

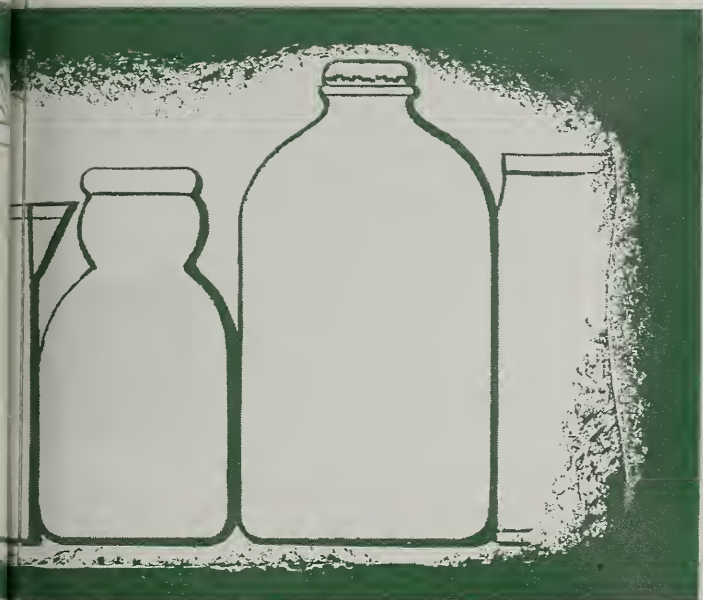
Many dealers also are selling increasing proportions of their milk in half-gallon and gallon glass containers. These sales in the larger bottles are mostly at the expense of the quart container.

Similarly, dealers are shifting to larger sized paper containers for fluid milk. The bulk dispenser accounts for further sales increases in containers of two gallons or more, and the trend toward these dispensers is reported on the upswing.

Small-size paper containers are used predominantly for coin operated vending machines, and for restaurants, institutions, schools, and industrial plants. Wherever sanitary regulations require that milk be served in its original containers, paper is preferred and the half-pint carton is most acceptable.

In comparing glass and paper containers throughout the country, it has been found that the shift is definitely toward paper cartons. Only in California has the proportion of glass and paper milk containers remained stable in the past five years.

In the Minneapolis-St. Paul marketing area, the sales of fluid milk in glass containers dropped from 76 percent in 1950 to 57 percent in 1954. Similarly, New York City sales of milk in stores shifted strongly from glass to paper. Although glass containers still are used mostly for home deliveries, the two-quart paper carton is making a strong bid for popularity. Overall sales of milk in glass containers in the New



York area declined from 60 percent in 1949 to 33 percent in 1955.

Five Ohio markets, however, used glass containers more than any other type in 1953-55. In Akron, about 81 percent of the total fluid milk distributed was in glass jugs and bottles. Cleveland packaged 72 percent of its milk in glass; Columbus, 54 percent; Dayton, 70 percent; and Ironton, 55 percent.

Changes among container sizes have also varied among the markets. Some have shown little change in the use of containers of any given size, while other markets have witnessed spectacular changes.

Half-gallon and gallon-size containers have come into widespread use in recent years. In Minneapolis-St. Paul, half-gallon container sales grew from 3 percent of total sales in 1950 to 32 percent in 1954. This area also reported a greater sale of fluid milk in bulk containers (two gallons or more) than any other market. From 1950 to 1954, sales in bulk containers went up from 2 to 6 percent.

In Chicago, half-gallon containers were most important, accounting for 37 percent of the total sales in 1955, while 23 percent of the milk was sold in quart containers.

In Kansas City, Mo., St. Louis, and San Antonio, sales of fluid milk in half-gallon containers in 1954 and 1955 ranged from 45 to 57 percent of the total sales. In the California, Chicago, Louisville, and Puget Sound areas, these sales were from 23 to 37 percent for the same period.

Rochester, N. Y., again offers a contrast in the usual pattern of container sizes with only about 1 percent of the fluid sales being in half-gallon containers. When, between 1944 and 1954, the 74 percent sold in quarts dropped to 69 percent, these sales went to third-quart and half-pint containers rather than to the larger half-gallons. Third-quarts and half-pints are sold in Rochester factories through vending machines and account for much of this trend to smaller containers.

But as the quart container is generally giving way to half-gallon and gallon sizes, so too is the retail route losing out to the wholesale trade in several marketing areas studied.

In Minneapolis-St. Paul, New York, and St. Louis, retail sales of fluid milk decreased from 5 to 9 percent from 1950 to 1955. Rochester, N. Y., noted a similar decrease except at a slower pace and over a ten-year period.

Only California showed but slight variation in the proportion of milk sold through retail (home delivery), wholesale and peddler-platform routes from 1951 to 1955. Here, retail sales remained relatively stable. The only change was in wholesale route sales, which dropped 3 percent, while the sales at the plant platform—largely to peddler routes—picked up by the same amount.

Milk dealers' sales at wholesale include not only their sales to stores but also their sales to restaurants, hotels, and institutions. In the marketing areas of Minneapolis-St. Paul, New York City, St. Louis, Rochester, N. Y., and California in 1954 and 1955 these accounted for 55 to 76 percent of fluid milk sales.

New York City, which for a long time has sold a large proportion of its fluid milk through retail stores, increased these sales by 6 percent between 1949 and 1955. A similar increase was witnessed in St. Louis, where in only a two-year period—from 1952 to 1954—market sales to wholesale outlets jumped from 47 to 57 percent.

Thus, across the nation, the changing pattern in fluid milk distribution can be seen. Sales of homogenized milk have increased sharply. Paper containers have been displacing glass. Half-gallon and gallon containers have become increasingly popular. And dealers' sales to stores have increased. These changes in practice and trends are important in understanding marketing margins for fluid milk.

A copy of the full report on this study, "Changing Patterns in Fluid Milk Distribution," MRR-135, is available from the Office of Information, U. S. Department of Agriculture, Washington 25, D. C.

OFFICIAL BUSINESS

END USE DETERMINES QUALITY OF WHEAT

The word "quality" when applied to wheat is a much abused term.

Even among those who use it most, there is a general misunderstanding and misuse. Wheat producers, intrastate wheat handlers, legislators, and government officials who administer the several wheat programs—each thinks of it in a different way.

Actually, when used in relation to a particular class of wheat, the word "quality" denotes its suitability for some specific purpose. It has no reference to intrinsic values.

Since commercial bakers are the primary users of wheat's principal product, flour, the demands of the baking industry determine the quality of the wheat it uses. For example, "yeast leavened" products require a certain type of flour, while "chemically leavened" baked goods demand another.

The deciding feature is the functional properties and machinability of the wheat used in these two classes of products. However, a particular type of wheat may be considered of "good" quality for one product, but "poor" for another.

Yeast leavened products, consisting primarily of bread and rolls, some pastries, and other baked items made by biscuit and cracker bakers, are best when made with flour obtained from the hard classes of wheat. Such classes are "Class I—Hard Red Spring Wheat," "Class IV—Hard Red Winter Wheat," and "Class VI—Subclass (A) Hard White Wheat."

Chemically leavened products — cakes, cookies, doughnuts, some pastries, biscuits and crackers — are generally made with flour obtained from the soft classes of wheat. These are "Class V—Soft Red Winter Wheat" and "Class VI—Subclass (B) Soft White Wheat."

Consumers and bakers alike consider yeast leavened products made with soft wheat flour to be of poor quality. This is because the intrinsic characteristics of soft wheat flour's protein and other components

simply do not produce yeast leavened products of a fine grain and texture, nor of a good volume.

The converse, of course, is also true. Chemically leavened products made with hard wheat flour are not acceptable to the consumer or baker. They lack "shortness," and the grain and texture are usually poor.

What is not true, however, is the general belief among producers and handlers of hard red spring wheat—including millers and bakers—that all other classes of wheat are inferior. Such a belief is erroneous.

Scientific studies on the functional properties of the various classes of wheat show that hard red winter wheat of equally sound protein content will produce flour having the same intrinsic baking quality as flour produced from hard spring wheat.

But without the benefit of scientific milling and baking tests it is difficult to determine with certainty which of two carloads of equal-grade wheat (one car hard red spring and the other car hard red winter) is of better quality.

This is a question still posed before researchers. One that must be solved in the not-too-far future.

—By Philip Talbott



Author (center) inspects durum wheat field near Tule Lake, Calif.